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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,315	11/19/2003	Tsuyoshi Sano	U 014901-6	6492

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/717,315	Applicant(s) SANO ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 11/19/03 & 4/12/04.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 2, which depends on claim 1, discloses that the content of carbon black is "0.01 wt.% or more" while claim 1 discloses that the content of carbon black is "less than 0.4wt.%". Thus, claim 2 fails to further limit the scope of the claim on which it depends, namely, claim 1 given that claim 2 is broader than claim 1. That is, claim 2 includes amounts of carbon black outside the scope of claim 1, i.e. amounts greater than 0.4 wt.%.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3, 15, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites "at least one of a polyalkylene emulsion and an emulsion containing a pH-adjusted resin". The scope of the claim is confusing given that the claim recites "at least one"

with respect to the different emulsions but also recites polyalkylene emulsion and emulsion containing a pH-adjusted resin. Thus, it is not clear if the fine particle emulsion comprises one or both of the polyalkylene emulsion and emulsion containing a pH-adjusted resin. In order to avoid confusion in the scope of the claim, it is suggested that “polyalkylene emulsion and emulsion containing a pH-adjusted resin” is changed to “polyalkylene emulsion or emulsion containing a pH-adjusted resin”.

Similar suggestions made in each of claim 15 and 17 which also recite similar “at least one” claim language.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-10, 12-13, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kataoka et al. '210 (U.S. 2005/0203210).

Kataoka et al. '210 disclose clear ink, corresponding to presently claimed black ink, comprising water, up to 0.4% carbon black, and 0.05-10%, in terms of solids, polymer fine particles comprising polyolefin emulsion such as polyethylene emulsion or polypropylene

emulsion or copolymer obtained by polymerizing ethylenically unsaturated carboxylic acid monomer such as (meth)acrylic acid and other copolymerizable monomer such as (meth)acrylates in the presence of alcoholic hydroxyl group-containing water-soluble macromolecular compound or copolymerizable surfactant to give a copolymer having an acid value of not more than 40. It is further disclosed that the pH of the copolymer is adjusted to 8-11 using alkali metal hydroxide or alkaline earth metal hydroxide. It is calculated that the solid content of the polymer fine particles is 0.125-25 times the content of the carbon black. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (paragraphs 3, 13-17, 28, 53-57, 59-64, 67, 72-73, 103-104, 109, 1112-114, 116-117, and claim 27).

In light of the above, it is clear that Kataoka et al. '210 anticipate the present claims.

6. Claims 1-10, 12-13, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kataoka et al. '626 (U.S. 2003/0189626).

Kataoka et al. '626 disclose clear ink, corresponding to presently claimed black ink, comprising water, up to 0.4% carbon black, and 0.05-10%, in terms of solids, polymer fine particles comprising polyolefin emulsion such as modified polypropylene emulsion or copolymer obtained by polymerizing ethylenically unsaturated carboxylic acid monomer such as (meth)acrylic acid and other copolymerizable monomer such as (meth)acrylates in the presence of alcoholic hydroxyl group-containing water-soluble macromolecular compound or copolymerizable surfactant to give a copolymer having an acid value of not more than 40. It is further disclosed that the pH of the copolymer is adjusted to 8-11 using alkali metal hydroxide or

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alkaline earth metal hydroxide. It is calculated that the solid content of the polymer fine particles is 0.125-25 times the content of the carbon black. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (paragraphs 2, 12-13, 16, 23, 53, 56-66, 70, 76-77, 117-118, and 120).

In light of the above, it is clear that Kataoka et al. '626 anticipate the present claims.

7. Claims 1-2, 12, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U.S. 6,114,411).

Nakamura et al. disclose black ink comprising water, 0.1-5% carbon black, and 0.2-20% resin as part of resin emulsion. It is calculated that the solid content of the resin emulsion is 2.5-20 times the content of the carbon black. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (col.3, lines 14-17, 35-36, and 66-67 and col.7, lines 7-8).

In light of the above, it is clear that Nakamura et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka et al. '213 (U.S. 2005/0203210), Kataoka et al. '626 (U.S. 2003/0189626), or Nakamura et al. (U.S. 6,114,411) any of which in view of EP 1219689.

The disclosures with respect to Kataoka et al. '213, Kataoka et al. '626, and Nakamura et al. in paragraphs 5-7 above are incorporated here by reference.

The difference between Kataoka et al. '213, Kataoka et al. '626, or Nakamura et al. and the present claimed invention is the requirement in the claims that the black ink comprises complementary color.

EP 1219689, which is drawn to ink jet inks, discloses adding complementary blue pigment to black ink in order to modify yellowing property of carbon black present in the black ink (paragraphs 3, 5, and 7).

In light of the motivation for using complementary color disclosed by EP 1219689 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such complementary color in the black ink of Kataoka et al. '213, Kataoka et al. '626, or Nakamura et al. in order to prevent yellowing of carbon black present in the black ink, and thereby arrive at the claimed invention.

11. Claims 1, 2, 12-13, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake (U.S. 6,670,409).

Yatake discloses ink set comprising plurality of light color inks and plurality of dark color inks wherein the light color inks include light black ink comprising water, 0.01-10% carbon black, and 0.05-10% pH-adjusted fine polymer particle emulsion. It is calculated that the solid content of the fine polymer particle emulsion is 0.05 (0.5/10) to 1000 (10/.01) times the content of the carbon black. There is also disclosed recording method wherein the ink is ejected from printer to form recorded matter (col.1, lines 10-15, col.2, lines 50-67, col.3, lines 48-54, col.3, lines 48-54, col.3, line 66-col.4, line 29, col.4, line 64-col.5, line 3, col.5, lines 49-54, col.6, lines 50-51, col.7, lines 53-60, and col.8, lines 12-14).

While Yatake fails to exemplify the presently claimed black ink nor can the claimed black ink be "clearly envisaged" from Yatake as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed black ink and the black ink disclosed by Yatake, it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use black ink which is both disclosed by Yatake and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake as applied to claims 1, 12-13, and 18-19 above, and further in view of EP 1219689.

The difference between Yatake and the present claimed invention is the requirement in the claims that the black ink comprises complementary color.

EP 1219689, which is drawn to ink jet inks, discloses adding complementary blue pigment to black ink in order to modify yellowing property of carbon black present in the black ink (paragraphs 3, 5, and 7).

In light of the motivation for using complementary color disclosed by EP 1219689 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such complementary color in the black ink of Yatake in order to prevent yellowing of carbon black present in the black ink, and thereby arrive at the claimed invention.

13. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake as applied to claims 1, 2, 12-13, and 18-19 above, and further in view of GB 2370580.

The difference between Yatake and the present claimed invention is the requirement in the present claims of specific ink set comprising black ink, black ink for medium gradation, and darker black ink.

Yatake discloses ink set comprising plurality of light color inks and plurality of dark color inks wherein the inks include light black ink and black ink comprising carbon black and fine particle polymer emulsion, however, there is no disclosure of ink set comprising black ink, black ink for medium gradation, and darker black ink as presently claimed.

GB 2370580 discloses ink set comprising black ink comprising about 3% to about 5% carbon black, dilute black ink comprising about 1% to about 4% carbon black, more dilute black ink comprising about 0.5% to about 3% carbon black, and most dilute black ink comprising about 0.1 to about 1% carbon black. The motivation for using such ink set is to produce high quality images of good image tone and high maximum density wherein the images possess high lightfastness (page 3, lines 12-13 and 19-23, page 7, lines 4-30, and page 8, lines 4-19).

In light of the motivation for using specific inks set disclosed by GB 2370580 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such ink set in Yatake in order to produce high quality images of good image tone and high maximum density wherein the images possess high lightfastness, and thereby arrive at the claimed invention.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamamoto et al. (U.S. 2005/0039632) discloses ink set comprising high concentration black ink comprising greater than 1.5% carbon black, medium concentration black ink comprising 0.4-1.5% carbon black, and low concentration black ink comprising 0.01-0.4% carbon black wherein each ink comprises resin emulsion. However, in light of the effective filing date of the reference, Yamamoto et al. is not applicable against the present claims under any subsection of 35 USC 102.

Sano et al. (U.S. 6,846,353) discloses black ink comprising 0.01-0.4% carbon black and resin emulsion, however, there is no disclosure that the solid content of the resin emulsion is 20 times or more that of the carbon black as presently claimed.

Mott et al. (U.S. 2004/0250726) disclose ink set comprising very light gray ink comprising 0.14% carbon black, light gray ink comprising 0.29% carbon black, medium gray ink comprising 0.6% carbon black and dark gray ink comprising 2.75% carbon black, however, there is no disclosure that the inks comprise fine particle emulsion and thus, no disclosure that the solid content of the fine particle emulsion is 20 times or more that of the carbon black as presently claimed.

Rode et al. (U.S. 6,565,202) discloses ink set comprising concentrated black ink comprising 3-5% carbon black, dilute black ink comprising 1-3% carbon black, more dilute black ink comprising 0.5-3% carbon black, and most dilute black ink comprising 0.1-1% carbon black, however, there is no disclosure that the inks comprise fine particle emulsion and thus, no disclosure that the solid content of the fine particle emulsion is 20 times or more that of the carbon black as presently claimed.

Ono et al. (U.S. 6,299,675) disclose thin comprising 1% or less pigment and thick ink comprising 2% or more pigment, however, there is no disclosure that the inks comprise fine particle emulsion and thus, no disclosure that the solid content of the fine particle emulsion is 20 times or more that of the carbon black as presently claimed.

Ishimoto et al. (U.S. 2003/0226473) discloses black ink comprising 0.1-20% carbon black and light black ink comprising 0.025-10% carbon black wherein the inks comprise 100 parts carbon black and 5-300 parts dispersant in the form of an emulsion, however, there is no disclosure that the solid content of the emulsion is 20 times or more that of the carbon black as presently claimed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
3/16/06